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**A matter of teaching and relationships: Determinants of teaching style,
interpersonal resources and teacher burnout**

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Abstract

The present study tests a model of the interplay between teaching style determinants, interpersonal resources, and teacher burnout dimensions, controlling for teachers' experience variables. Two-hundred and ninety-eight teachers in the Portuguese educational system teaching in a rural region participated in the research. Using a Structural Equation Modeling (SEM) approach, the key finding of this study is that teacher interpersonal self-efficacy and teacher-student closeness partially mediated the connections between teacher epistemological sophistication and student misbehavior and teacher burnout. Specifically, an increment of teacher depersonalization is associated with student misbehavior, when mediated by interpersonal self-efficacy and teacher-student closeness. Moreover, while greater attunement with students (meaning lower conflict) prevents emotional exhaustion caused by student misbehavior, it also has costs in terms of lower professional accomplishment. Thus, in intense interpersonal settings like schools, teacher interpersonal resources, especially teacher-student closeness and attunement, may not have an universal positive return for educators. Implications for future research are recommended, such as the replication of this model across urban and suburban settings. In addition, it seems warranted that teacher pre-service and service training readdress the topic of interpersonal resources as a means to improve teacher well-being, including its merits and limits.

Keywords: teaching style; interpersonal self-efficacy; teacher-student relationships; teacher burnout.

1. Introduction

One of the most significant consequences of teachers' continuous exposure to stress is burnout. Teacher burnout is as a long term response to the experience of emotional and interpersonal occupational stressors (Bermejo-Toro et al. 2016). The exposure of teachers to burnout is a highly prevalent phenomenon: recent research shows that between 10 and 20% of teachers could be suffering from high burnout levels, and between 20 and 40% from moderate levels (Bermejo et al. 2016).

The effects of teacher stressors on burnout levels and direction are complex and often tempered by a wide array of resources (Bermejo et al. 2016; Skaalvik and Skaalvik 2007; 2017). This premise arises from traditional stress models demonstrating that, in a given context, the stress response is a function of the balance between stressors and coping resources. Such resources include contextual demands, personal characteristics, and interpersonal skills (Hobfoll and Vaux 1993). In the case of teachers, stress levels are associated with teaching style and its determinants (Fernet et al. 2012). Teaching style involves the expression of personal characteristics through the act of teaching (Baleghizadeh and Shakour 2017). It has often been assessed in terms of a continuum from more controlling approaches to teaching to autonomy supportive ones, involving acknowledging students' opinions, feelings, and interests; setting learning limits and expectations, and providing opportunities for self-initiated learning (Reeve 2009).

Teaching style depends on some determinants also alluded to in the literature as potential sources of pressure. Among those determinants is teacher professional autonomy in terms of constraints that may be set by school organization or curricular demands. Another determinant is the teachers' personal epistemology, involving motivational orientation for teaching or personal beliefs about knowledge building

(Hofer and Pintrich 1997). A recurrent indicator of personal epistemology is epistemological sophistication, meaning a representation of knowledge as a product of cognitive resources and involvement mobilized by the student (Figueiredo et al. 2015). Student misbehavior is another relevant teaching style determinant which may affect subjective levels of teacher burnout (Soenens et al. 2012). In sum, determinants of teaching style may be related to school demands, teachers' personal views, or student behavior, thus justifying these factors being categorized, respectively, as pressures from above, from within, and from below (Soenens et al. 2012).

In this study, teacher interpersonal resources are conceptualized according to two indicators: interpersonal self-efficacy and student-teacher relationships. Interpersonal self-efficacy involves the teacher's beliefs about the ability to develop and sustain positive relationships with school administration, peers, and students (Moura and Costa 2016). Teacher-student relationships refer to the quality of pedagogical interaction when managing aspects such as closeness and conflict (Pianta 2001). Finally, teacher burnout is measured in terms of the dimensions of emotional exhaustion, depersonalization, and professional accomplishment (Maslach et al. 1996).

This report covers a noteworthy general limitation of the literature: the number of studies focusing on the intermediate role of interpersonal resources in shaping the connections between teaching style determinants and teacher burnout is still outnumbered by the number of reports aiming at understanding the intermediate role of working conditions (e.g. time pressure or workload) (Bermejo et al. 2016; Veldman et al. 2017). This general gap may be collapsed into three specific limitations addressed in this paper. First, evidence regarding the connections between teaching style determinants, interpersonal self-efficacy, and teacher burnout are scant. Although a mounting number of research pieces (Brouwers et al. 2001; Fernet et al. 2012; Skaalvik

and Skaalvik 2007) have studied the intermediate role of general teacher self-efficacy between sources of pressure in teaching and burnout, the intermediate role of teachers' interpersonal sense of competence in tempering teacher burnout levels is still missing from the literature. Some seminal findings show, however, that teacher task-related self-efficacy and teacher interpersonal self-efficacy show distinct patterns of association with burnout (Friedman 2003).

Second, to our knowledge, the same intermediate role of teacher-student relationships in shaping the connections between teaching style determinants and burnout remains untapped. While high quality pedagogical relationships may have a positive impact for both students (Hattie 2008) and teachers (Unterbrink 2007), interpersonal interactions are also a source of tension and conflict. The contradictory role of pedagogical relationships, especially the space and time to manage closeness as well as conflicts, may be limited due to more directive external prescriptions or personal beliefs about how to teach or in the face of pressure to improve students' results. Finally, teacher burnout determinants in rural areas remain an unaddressed topic. While seminal works (e.g. Abel and Swell 1999) did not detect differences between teachers in urban and rural areas regarding burnout levels, recent efforts (Zhang et al. 2014) have shown that the burnout levels of those teaching in Chinese rural regions are higher than the national average. In Portugal, the most up-to-date findings are inconclusive in this respect. In regions comprising both urban and rural settlements, teachers report significantly higher burnout levels compared, for instance, with the most urbanized region of the country, the Greater Lisbon area (Varela et al. 2018). However, the criteria to delimit regions in this study does not clearly distinguish urban from rural areas. This gap complicates interpreting evidence, thus encouraging a scoped analysis of Portuguese rural teacher burnout determinants. In addition, rural education struggles

with greater scarcity of resources (Papadakis and Kyvelou 2017), students' lower achievement and parents' lower socio-economic status (OECD 2013). There is also greater instability in teaching careers, with the lower number of permanent contracts (Reagan et al. 2019) potentially contributing to greater burnout levels among rural teachers. How some of these factors interact with rural teachers' interpersonal resources to influence burnout outcomes remains unaddressed.

1.1. Interpersonal Resources

1.1.1. Teacher interpersonal self-efficacy

Bandura (1997) describes self-efficacy as "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments". Self-efficacy perceptions are shaped by judgements about past performance attainments (mastery), experiences derived from observing a social model or even oneself, perform a task (vicarious experience), evaluative feedback about one's performance (social persuasions) and physical and emotional cues associated with the completion of a given task (Morris et al. 2017).

Specific types of self-efficacy have been defined considering that different contexts, including occupational ones, propose different challenges. Educational research has come, therefore, to present teacher self-efficacy as teachers' beliefs in their ability to influence valued student outcomes (García-Ros et al. 2015; Morris et al. 2017; Skaalvik and Skaalvik 2007). Teacher self-efficacy assessment is diverse, ranging from unidimensional measures to multidimensional approaches, covering perceptions about their self-efficacy on areas such as instructional ability, classroom management, or student engagement (Morris et al. 2017; Skaalvik and Skaalvik 2007). Recent efforts have been made to depict the connections of specific dimensions of teacher self-efficacy

with other educational, development, or well-being outcomes (e.g. Skaalvik and Skaalvik 2007). For instance, Cherniss (1993) has proposed the assessment of professional self-efficacy in three domains: tasks, organization, and relationships. This proposal has paved the way to assess teachers' interpersonal self-efficacy as their perceptions about the ability to develop and sustain positive relationships with students, school administration, and peers (Moura and Costa 2016). These perceptions of teachers' interpersonal self-efficacy are affected by general self-efficacy antecedents (e.g. mastery) but also by personal agency to develop social relationships or others' openness and feedback (Locke et al. 2016).

The benefits of an improved sense of efficacy for teachers have been described in terms of greater well-being (Klassen and Chiu 2010) or lower levels of burnout (Fernet et al. 2012). Much less is known about the benefits of teachers' interpersonal self-efficacy for teachers themselves. At least two studies show that teachers' greater interpersonal self-efficacy, especially interpersonal self-efficacy to manage a classroom, is a relevant predictor of lower levels of burnout (Friedman 2003; García-Ros et al. 2015). However, the potential intermediate role of teacher interpersonal self-efficacy between teaching stressors and burnout remains uncovered.

1.1.2. Student-teacher relationships

The quality of student-teacher relationships has been conceptualized according to different dimensions. While some focus on the levels of conflict and closeness reported between teachers and students (Jerome et al. 2009), others measure the balance between what one gives and what one receives (reciprocity) in the relationship (Rodríguez-Mantilla and Fernández-Díaz 2017).

The assessment of teacher-student relationships must consider an intricate interaction between personal and contextual features (Jerome et al. 2009). Personal attributes, such as teacher and student gender, age, social-economic status, or ethnicity have been found to influence pedagogical relationship quality. In general, closer and less conflictual relationships are reported when students are girls, younger, have a higher social status, and belong to dominant ethnic groups (Jerome et al. 2009; Pianta 2001; Spilt et al. 2011) and teachers are older males (Quaglia et al. 2013). The internalized relational styles that teachers and children have developed in their basic relationships are also determinant in understanding teacher-student relationships. Similarities have been found between parent-child and teacher-student styles or patterns of interaction, especially among younger children (Pianta and Steinberg 1992). Teachers who also feel more secure in relationships, based on their previous experiences with significant adults in their own lives, tend to facilitate closer and less conflictual relationships with pupils (Jerome et al. 2009). Contextual factors, such as school climates that value warm, empathetic relationships, more flexible curricular demands, or predictable and relaxed classroom interactions may all contribute to improving social interactions at the teacher-student level (Pianta 2006). However, as Jerome and colleagues (2009) point out, teacher/student personal attributes and relational styles are more relevant when explaining pedagogical relationship quality.

The importance of teacher-student relationships has risen in educational research, due to the benefits relationship quality may entail for students. For instance, Hattie's (2008) second order meta-analysis of school achievement predictors has ranked teacher-student relationships eleventh among one-hundred and thirty-eight factors contributing to school performance. Less has been investigated about teacher-student benefits for teachers. At least one study has demonstrated that greater relationship quality in terms

of greater predictability, positive affect, and closeness with pupils brings a greater sense of teacher self-efficacy (Split et al. 2011). In addition, two studies (Rodríguez-Mantilla and Fernández-Díaz 2017; Unterbrink 2007) have shown that greater relationship quality between students and teachers, in terms of perceived reciprocity, prevents teacher burnout.

1.2. Teacher burnout

Teacher burnout thus corresponds to limited engagement in response to stressors related to the teaching experience (Bermejo-Toro et al. 2016; Skaalvik and Skaalvik 2017). Burnout is described according to a complex set of negative attitudes and feelings. A central feature of burnout is emotional exhaustion, and corresponds to a feeling of depleted energy, chronic fatigue, or feeling worn out. This sense of exhaustion is accompanied by cynical attitudes towards others or depersonalization, which in formal education are aimed at students and peers, and the sense that the occupational duties are not fulfilling or rewarding (Bermejo-Toro et al. 2016; Skaalvik and Skaalvik 2017). The tridimensional display of burnout responses has been confirmed by strong evidence, with unidimensional measurement models denoting worse fit compared to multidimensional models (Skaalvik and Skaalvik 2017) and different dimensions of burnout showing different/opposite connections with the same stressor (Brouwers et al. 2001; Fernet et al. 2012). Strong evidence is also available to demonstrate that burnout begins with emotional exhaustion leading to cynical behaviors and, consequently, feelings of low personal and professional efficacy (Rodríguez-Mantilla and Fernández-Díaz 2017).

A vast number of factors have been underpinned as teacher burnout determinants. These may include work overload and lack of time, role ambiguity and conflict,

pressures of the teacher's role, inadequate resources, poor working conditions, lack of professional recognition, lack of professional autonomy, dissonance between school values and teacher values, low remuneration, lack of involvement in decision-making, lack of effective communication, staff conflicts, or student misbehavior (Fernet et al. 2012; Bermejo-Toro et al. 2016; Betoret 2006; Skaalvik and Skaalvik 2017).

Preliminary research efforts divided teacher burnout antecedents into first order stressors, involving those that directly interfere with the teacher's efforts (time and energy) displayed to achieve valued outcomes with students (e.g., student misbehavior, poor student attendance, obtrusive supervisors, etc.) and second order stressors, corresponding to factors that do not directly interfere with teacher effort (e.g. aims of educational system, social conception of teacher's role, etc.) (Blase 1982).

1.3. The interplay between teaching style determinants, interpersonal resources, and teacher burnout

The connections between teaching style determinants, interpersonal resources, and teacher burnout have been discussed in various studies. Skaalvik and Skaalvik (2010) have targeted small sized associations between teacher autonomy (in terms of teacher decision latitude) and greater emotional exhaustion. These connections tend to be explained within a framework of dissonance between teachers' need of autonomy and controlling school cultures (Skaalvik and Skaalvik 2017). The same authors found that greater student misbehavior is slightly linked to greater emotional exhaustion and depersonalization (Skaalvik and Skaalvik 2010). Concomitantly, pathways between epistemological sophistication and burnout dimensions, to date, have not been tested.

Teaching style determinants are more often shown to be indirectly related to burnout, through the intermediate effect of general teacher self-efficacy. Fernet and

colleagues (2012) demonstrated that teacher self-efficacy buffered teachers' professional autonomy and students' disruptive behavior effects on teacher burnout, leading to significantly lower levels of emotional exhaustion and depersonalization, as well as to greater levels of personal accomplishment. The intermediate role of teacher self-efficacy between teaching sources of stress and teacher burnout has been found elsewhere (e.g. Bermejo-Toro et al. 2016), prompting strong connections between teachers' personal sense of competence and mental health indicators, such as burnout. Such a trend is evident in disparate reports, displaying moderate, but systematic associations between greater teacher self-reliance on their teaching abilities, lower levels of emotional exhaustion and depersonalization, and a higher sense of accomplishment (Brouwers and Tomic 2001; Skaalvik and Skaalvik 2007; 2010). Follow-up systematic reviews (Zee and Koeman 2016) have added that these connections between teacher self-efficacy and burnout dimensions are independent from the influence of teachers' career stage, grade level, or country.

Only a few reports have started to filter which specific dimensions of teacher self-efficacy contribute to teacher burnout (Friedman 2003; García-Ros et al. 2015). These studies have demonstrated that teacher interpersonal self-efficacy contributes to lower emotional exhaustion, lower depersonalization, and higher personal accomplishment among teachers. Moreover, they have shown that such a relationship is systematic, contrary to task-related self-efficacy, which was not associated with any of the burnout dimensions (Friedman 2003), and that interpersonal self-efficacy may explain close to 50% of the variation on different dimensions of teacher burnout (García-Ros et al. 2015). However, these studies report univariate analysis of the influence of interpersonal self-efficacy on different burnout dimensions, not controlling for the

concurrent effects of potential sources of pressure in the form of teaching style determinants.

Moreover, there is a lack of research in understanding the role of teacher-student relationships quality between teaching style determinants and teacher burnout. Some evidence upholds, however, the importance of good quality relationships between teachers and their pupils for preventing teacher burnout. Skaalvik and Skaalvik (2017), in a recent report, show that greater quality in pedagogical relationships leads to less tendency from teachers to adopt cynical attitudes towards students, as well as to a greater sense of professional accomplishment. Another recent report (Rodríguez-Mantilla and Fernández-Díaz 2017) found moderate connections between greater relationship quality between teachers and students and improved prospects on all teacher burnout dimensions, including a display of lower emotional exhaustion. Similar results were found elsewhere (Van Droongenbroeck et al. 2014). In addition, while some studies (Rodríguez-Mantilla and Fernández-Díaz 2017) indicate that relationships with students have a greater and more consistent impact on all burnout dimensions, above and beyond the impact of relationships with superiors and peers; other studies indicate that teacher-student relationships, defined in terms of reciprocity, predict less variation in teacher burnout than organizational reciprocity (van Horn et al. 1999). Different teacher-student conceptualizations and instrumentation may help to explain some discrepancies in these findings. However, it seems safe to expect that teacher-student relationships may produce some impact on teacher burnout dimensions.

The interplay between determinants of teaching style, teacher interpersonal resources, and teacher burnout must consider the effects of teaching experience variables. Some evidence illustrates that teacher burnout may be higher among secondary school teachers (Rodríguez-Mantilla and Fernández-Díaz 2017). This might

not be surprising, considering that the levels of conflict tend to be higher with adolescent students who are struggling to establish their autonomy and expand their decision latitude (Smetana and Daddis 2011). Moreover, experienced teachers tend to feel the effects of the burnout syndrome more often. The continuous exposure to stressful events seems to outweigh the fact that teacher self-efficacy shows a curvilinear development, with more positive prospects at both the beginning and the end of the career (Klassen and Chiu 2010), and the reported evidence that older teachers display greater effectiveness in managing their relationships with students (Quaglia et al. 2013). Finally, more unstable teaching careers and greater involvement in administrative roles has negative implications in teacher burnout, although those involved in decision-making at school denote greater job satisfaction and sense of efficacy (Klassen and Chiu 2010).

1.4. The present study

The present study is intended to test a model of the interplay between teaching style determinants, interpersonal resources, and teacher burnout dimensions, controlling for teacher experience variables (school level taught; experience of teaching in number of years; type of contract and experience of school administration). This research goal addresses the scarcity of studies clarifying the intermediate role of interpersonal resources (interpersonal self-efficacy and teacher-student relationships) between teaching style determinants, whether they are related to school demands (professional autonomy), personal beliefs about learning (epistemological sophistication), or with the students (misbehavior), and teacher burnout dimensions. This research goal also enables the exploration of how specific dimensions of teacher self-efficacy, namely interpersonal self-efficacy, operate in a framework including various teaching style

determinants and burnout. Finally, this study focuses on teachers working in a Portuguese rural region, an unusual focus in the literature, although teacher well-being in these areas may be affected by a lack of cultural/material resources and complex relationships (Singh and Dika 2003).

The hypothesis of this study is that greater teaching autonomy, greater epistemological sophistication, and lower rates of student misbehaviour will be associated with an all teacher burnout dimensions through increased levels of interpersonal teaching self-efficacy and student-teacher closeness and attunement.

2. Method

2.1. Participants

Two-hundred and ninety eight teachers participated in this study. Their distribution by teaching level followed the Portuguese educational system organization: 122 (41.00%) were teaching at elementary schools (grades 1st to 4th); 47 (15.80%) were teaching at lower middle schools (5th and 6th grades); 68 (22.80%) taught at upper middle schools (grades 7th to 9th), and 61 (20.40%) taught at upper middle school /or at high school level (grades 10th to 12th). Their years of teaching experience was considerable ($M = 20.49$; $SD = 8.40$), but were unevenly distributed. Many participants (133; 44.60%) had 21 years or more teaching experience; 75 (25.20%) had been working in the area between 16 to 20 years; 55 (18.50%) had taught for 11 to 15 years; 28 (9.40%) had been teaching between 6 to 10 years; only 7 participants (2.30%) had been teachers for five years or less. Most of the participants (257; 86.20%) were permanent teachers; the remaining had a temporary teaching contract. The majority (161; 54.00%) had had some experience of school administration duties.

2.2. Site

This study took place in The Azores, an archipelago of nine islands in the middle of the Atlantic Ocean a two-hour flight from the capital city of Lisbon with a population of 247,372 inhabitants. According to European Union standards, the region is considered to be a rural area (EUROSTAT 2013). The primary sector represents an important part of the whole region's employment (10.70%), almost equivalent to the secondary sector (15.30%), although the tertiary sector involves most of the working population (74.00%) (Governo Regional dos Açores 2018).

Teaching in The Azores poses important contextual and career challenges to teachers. To begin with, the region struggles with very low levels of education. Among the contextual challenges, it is important to note that the rate of upper middle school conclusion is the lowest in the country (85.90%), while the rate of high school conclusion is the second lowest rate among Portuguese regions (67.30%) (Conselho Nacional da Educação 2016). Moreover, the rate of early-school leaving in The Azores is the highest in the country. Parents' socio-economic status, in terms of income and educational level, is lower compared with the rest of Portugal; this often results in lower parental expectations about their children educational attainment (Governo Regional dos Açores 2018). Regarding the career conditions in The Azores, the teaching force faces an ageing problem: only 2.00% of the teachers are aged 30 years old or less; 28.78% are aged 39 years old or less. Still, most of the teachers (77.07%) have a permanent job contract (Secretaria Regional da Educação e Cultura 2017).

2.3. Instruments

2.3.1. Teacher professional autonomy

Teacher professional autonomy using the Teacher Professional Autonomy Scale (TPAS) (Veiga et al. 2003). The TPAS includes 32 items divided in six subscales:

autonomy in class organization (sample item: I have the power to choose how I want to organize the classroom); autonomy in choosing class content (sample item: I have autonomy to choose themes for my students, which are not included in the curricula); autonomy in training (sample item: I can choose the time when I want to participate in training; autonomy to address parents (sample item: I have the power to develop cultural activities with parents); autonomy in teaching and assessment (sample item: I can choose new teaching methods); autonomy towards curriculum (sample item: I can choose or omit parts of the official curriculum). Response options range from 1 (no autonomy) to 6 (full autonomy), with higher scores meaning perceptions of greater teacher autonomy. This instrument showed to be reliable as a whole-measure of Portuguese teachers' professional autonomy in prior studies ($\alpha = .95$) (Veiga et al. 2003) as well as in this study ($\alpha = .93$).

2.3.2. Epistemological sophistication

Epistemological sophistication was assessed as an indicator of pressures from within, using a subscale of the Scale of Epistemological Positioning (SEP) questionnaire (Figueiredo et al. 2015). This subscale of the SEP is constituted by 10 items (sample item: Everyone needs to learn how to learn). Response options range from 1 (strongly disagree) to 5 (strongly agree), with higher scores indicating greater epistemological sophistication. This instrument showed to be a reliable measure of epistemological sophistication ($\alpha = .72$) (Figueiredo et al. 2015), including in this study ($\alpha = .78$).

2.3.3. Student misbehavior

Student misbehavior was assessed using the Portuguese version of the Behavior Rating Profile (BRP) (Brown and Hamill 1983). The BRP encompasses 25 items (sample item: My students are obedient). Response options range from 1 (many times) to 4 (never); 14 items are reversed (sample item: My students are lazy). Higher ratings in this questionnaire indicate worse perceptions of student behavior. The instrument showed to be a reliable measure of student behavior in prior research (author 2006) ($\alpha = .89$) as well as in this study ($\alpha = .91$).

2.3.4. Teacher Interpersonal Self-Efficacy

Teacher interpersonal self-efficacy was assessed using the Portuguese version (Moura and Costa 2016) of the Teacher Interpersonal Self-Efficacy Scale (TISE) (Brouwers and Tomic 2001). The original questionnaire comprises 24 items and measures interpersonal self-efficacy in three dimensions: interpersonal self-efficacy in class management (14 items; sample item: I'm able to manage my class well), interpersonal self-efficacy in obtaining superiors' support (5 items; sample item: I'm confident that, if necessary, I will manage to ask for advice from the school board); and interpersonal self-efficacy in obtaining peers' support (5 items; sample item: I'm confident that, if necessary, I will manage to ask for advice from the school board). Response options range from 1 (completely disagree) to 6 (completely agree), with higher scores indicating greater interpersonal self-efficacy in each of its dimensions. This instrument proved to be reliable as a measure of teacher interpersonal self-efficacy in each of these dimensions ($\alpha > .90$) (Brouwers and Tomic 2001; Moura and Costa 2016). In this study, TISE was used as a whole measure of teacher interpersonal self-efficacy, showing an adequate internal consistency rate ($\alpha = .92$).

2.3.5. Teacher-Student Relationship - Short Form

Teacher-student relationship was assessed using the Portuguese version (author 2015) of the Teacher-Student Relationship Scale - short form (STRS-SF) (Pianta 1992). The STRS-SF is constituted by 15 items and two dimensions. Seven items assess the level of teacher-student closeness (sample item: When I praise this child, she/he beams with pride); eight items assess the level of teacher-student conflict (sample item: this child is sneaky or manipulative with me). Response options range from 1 (definitely does not apply) to 5 (definitely applies). In this study, the TSR-SF was used to assess teacher-student relationships in general, from the teacher standpoint, instead of individual relationships. This means that slight changes to items were made to enable general assessment of teacher-student relationships (sample item: When I praise my students, they beam with pride). Higher ratings in this questionnaire indicate better perceptions of closeness and attunement (as opposed to conflict). The instrument showed to be a reliable unidimensional measure of teacher-student closeness ($\alpha = .87$) and attunement ($\alpha = .86$), in prior Portuguese studies (Patrício et al. 2015), as well as in this research ($\alpha = .88$ for closeness and $\alpha = .85$ for attunement).

2.3.6. Teacher Burnout

Teacher burnout was measured using the Portuguese version (Semedo 2009) of the Maslach Burnout Inventory (MBI) (Maslach, et al, 1996). The MBI comprises 22 items divided by three dimensions: emotional exhaustion (9 items; sample item: I feel very energetic), depersonalization (5 items; sample item: I have become insensitive to people since I started in this job); and professional accomplishment (8 items; sample item: I have accomplished many important things in this profession). Response options should rate items from 0 (seldom) to 6 (very frequent), with higher scores indicating greater

levels of emotional exhaustion, depersonalization, and professional accomplishment.

The three subscales have shown to be reliable measures of the three burnout dimensions MBI ($\alpha = .73$ to $\alpha = .91$) (Maslach et al. 1996). In studies using the Portuguese version of the instrument lower, inadequate inconsistency levels have been found for the depersonalization subscale ($\alpha < .60$) (Semedo 2009). In this study, however, the MBI depicted acceptable to good internal consistency values for emotional exhaustion ($\alpha = .89$), depersonalization ($\alpha = .73$), and professional accomplishment ($\alpha = .76$).

2.3.7. Teaching Experience

Four factors of teaching experience were characterized: (a) school level taught (0 = primary school; 1 = second level of basic education; 2 = third level of basic education; 3 = third level of basic education and/or high school); (b); experience of teaching in years (number of years); (c) type of contract (0 = temporary teacher; 1 = permanent teacher); and (d) experience of school administration (0 = no; 1 = yes).

2.4. Procedures

Data was collected using an online questionnaire. Response to all items was mandatory to avoid missing data. The study protocol was made available through a link sent to all members of the teachers' unions, in the region of Portugal where the study took place. This seemed the most appropriate approach to involve teachers, because teacher union action on behalf of teachers' working conditions makes their members more prone to be engaged in their activities, including participating in studies at their request, compared to more formal or usual channels, such as school boards. The online study protocol was made available between October and December of 2017.

2.5. Data Analysis

Descriptive statistics and correlations among study variables were tested. Three Structural Equation Models (SEM) were compared using AMOS 25.0. The models were set after checking the correlational matrix, to meet the mediation requirements proposed by Hayes (2013): (a) show that predictor variables are correlated with the outcomes; (b) show that predictor variables are correlated with the mediator; and (c) show that the mediator affects the outcomes. Afterwards, outliers and multicollinearity were tested by regressing each of the outcome variables into teaching style determinants and teacher interpersonal resources, using SPSS 25.0. Outliers analysis was conducted using Cook's D, with D values below 1 indicating the absence of outliers. Multicollinearity was assessed using Variation Inflation Factors (VIF), with values below 4 used as the cut-off point for non-overlap between factors (Argyrous 2011).

Model 1 was fully mediated, including only indirect paths from teaching style determinants to each of the teacher burnout dimensions, through teacher interpersonal resources factors. Model 2 was a partially mediated model and was identical to Model 1, with the addition of direct paths connecting all sources of pressure. Model 3 was a non-mediated model comprising direct paths connecting all teaching style determinants to both teacher interpersonal resources variables and teacher burnout. **All models were estimated using weighted least square mean and variance adjusted estimation. The bias-corrected bootstrapped estimates procedures of the standard estimates and errors for the indirect effects were implemented; 1000 bootstrapped samples were requested referring to the 95% Confidence Intervals (CI).** All models controlled for the effects of teaching experience in terms of school level taught, years of teaching experience, type of contract, and experience of school administration, whenever correlational evidence implied the need to control for those effects. Values below .05 for RMSEA and SRMR

indicate a good fit, whereas values up to .08 represent acceptable errors of approximation. As a general rule, CFI values greater than .90 were regarded as indicating a good fit, and superior to .95 as denoting an optimal fit (Hu and Bentler 1999).

3. Results

3.1. Descriptive and correlational analysis

Table 1 depicts descriptive and correlational measures between study variables. Correlations between teaching experience variables are common and in the expected direction. Correlations between teaching experience variables and different teaching style determinants and interpersonal resources are more infrequent. Nevertheless, modest correlations were found between higher educational levels taught and lower professional autonomy. In turn, teaching higher school levels is related to higher epistemological sophistication and greater teacher-student closeness. Moreover, having a permanent contract is slightly related to improved teacher interpersonal self-efficacy and teacher-student attunement. Teaching experience is seldom associated with burnout dimensions, as opposed to interpersonal resources. Still, teachers working with students at lower teaching grades report lower levels of emotional exhaustion, while teachers with a temporary contract show lower levels of professional accomplishment. Correlations between interpersonal resources and burnout dimensions are all significant, but some are not in the expected direction. For instance, all interpersonal resources lead to worse perceptions of personal accomplishment.

(Table 1 approximately here)

3.2. SEM

Multivariate assumptions to implement SEM were verified. Cook's D was below cut-criteria (.02 for depersonalization, .06 for emotional exhaustion, and .08 for depersonalization). Multicollinearity, using the VIF indicator were well below the cut-off criteria of 4 for the different burnout dimensions.

According to SEM analysis, Model 2, which tested for partial mediated effects between the study variables, presented a better fit, $\chi^2(70, 34) = 2.03, p < .01, CFI = .97, RMSEA = .052 (.030, .073), SRMR = .045$, compared to Model 1, which tested for a full mediation hypothesis, $\chi^2(60, 44) = 3.13, p < .001, CFI = .90, RMSEA = .085 (.069, .101), SRMR = .063$, and Model 3, which tested for direct effects, $\chi^2(61, 43) = 7.81, p < .001, CFI = .70, RMSEA = .152 (.137, .167), SRMR = .105$.

Coefficient paths of Model 2 are presented in Figure 1. Covariance paths between latent variables and/or latent change variables are not depicted because they are virtually the same as the latent correlations presented in Table 1. Controlling for the effects of teaching experience in terms of school level taught, career level, experience of teaching in years, type of contract, and experience of school administration, and taking into account the baseline regressive effect of corresponding latent variables, results show that higher teacher professional autonomy leads to lower emotional exhaustion ($\beta = -.15, p < .01$) as opposed to greater student misbehavior ($\beta = .12, p < .05$). In turn, while greater epistemological sophistication improved teacher-student closeness ($\beta = .16, p < .01$), contrary to greater student misbehavior ($\beta = -.11, p < .01$), both of these sources of teaching style determinants were related to lower levels of emotional exhaustion when mediated by teacher-student closeness ($\beta = -.20, p < .01$).

In parallel, higher levels of epistemological sophistication were directly associated with greater depersonalization ($\beta = .13, p < .01$). By the contrary an increase on student

misbehavior led to lower depersonalization ($\beta = -.15, p < .01$). An increment of teacher professional autonomy was associated with higher interpersonal self-efficacy ($\beta = .32, p < .001$), while greater student misbehavior was linked to lower interpersonal self-efficacy ($\beta = -.30, p < .001$). Teacher professional autonomy and student misbehavior were moderately related to greater depersonalization levels when mediated by teacher interpersonal self-efficacy ($\beta = .37, p < .001$). Paths of epistemological sophistication and student misbehavior showed a small, but positive association with depersonalization, through teacher-student closeness ($\beta = .15, p < .05$).

Finally, teaching style determinants affected personal accomplishment through the mediated effects of interpersonal resources. The paths of teacher professional autonomy and student misbehavior from to professional accomplishment, through interpersonal self-efficacy, showed a negative association between these variables ($\beta = -.16, p < .01$). Indirect paths from epistemological sophistication and student misbehavior through teacher-student closeness, as well as the indirect path of student misbehavior through teacher-student attunement, also led to a moderate negative connection with professional accomplishment ($\beta = -.34, p < .001$).

(Figure 1 approximately here)

4. Discussion

This study led to four main findings, by testing the interplay between teaching style determinants, teacher interpersonal resources, and teacher burnout dimensions, among Portuguese teachers working in a rural area, controlling for teacher experience variables.

Firstly, to a great extent, the correlational pattern found for the study variables was consistent with prior findings. However, two notes are important, in this respect.

Teaching a more advanced grade showed small, but significant associations with lower

teacher autonomy, greater epistemological sophistication, and greater teacher-student closeness. More extensive and demanding curricula in upper schooling levels, paired with greater expectations about students' results in order to be accepted by universities may limit teachers' autonomy at later stages of teaching, justifying these results. In addition, students' cognitive development, with gains in the degree of abstraction and perspective taking (Cotterell 2007) may influence those participants teaching more advanced grades to cultivate greater epistemological sophistication. However, this result also suggests that teachers at lower tiers of teaching may show a slight disbelief in children-centered teaching techniques, including autonomy-granting strategies. This result needs, nevertheless, further investigation. Moreover, having a permanent contract translates into greater participation in school administration and leads to modest gains in interpersonal self-efficacy and teacher-student attunement. In general, these findings indicate that stability offers some contributions to teachers' participation and relationship quality, a feature of school systems that has been shown elsewhere (Klassen and Chiu 2010).

Secondly, according to SEM analyses, emotional exhaustion is prevented by higher levels of professional autonomy and worsened by student misbehavior, extending similar evidence found in other reports (Skaalvik and Skaalvik 2010). Greater epistemological sophistication and lower levels of student misbehavior have an indirect association with lower levels of teacher emotional exhaustion, when mediated by teacher-student closeness. This effect is particularly relevant in the case of student misbehavior: while pupils' deviant behavior has a small, but significant impact on teachers' emotional exhaustion, its effect is reversed when mediated by teacher-student closeness. This finding adds to a considerable body of literature showing that social support, including the one displayed in teacher-student relationships, not only has a

negative relationship with students' deviant behaviors, it also contributes to teachers' well-being, including small to moderate reductions in emotional exhaustion (Rodríguez-Mantilla and Fernández-Díaz 2017; Van Droogenbroeck et al. 2014).

Thirdly, teacher's greater epistemological sophistication and teacher's perceptions of student misbehavior were directly related to depersonalization, although in distinct directions: while an increase in epistemological sophistication was linked to a small increment of depersonalization, greater student misbehavior implicated a drop in depersonalization levels. In general, personal beliefs held about knowledge development have not been found to be a source of direct influence on teacher burnout dimensions. However, just as there are reported contradictions between teachers' beliefs that pupils are the main agent of knowledge construction and teachers' insistence on enacting teacher-centered strategies (Figueiredo et al. 2015), greater teacher epistemological sophistication beliefs sometimes bring some misconceptions about the learning process. One of the most common is that autonomy in learning is synonymous of student self-instruction, without the need of teacher intervention (Little, 1991). This is a misapprehension which may, in turn, justify greater teacher distance and, thus, depersonalization.

Fourthly, a set of unexpected results was also found in this work. To begin with, an increment of depersonalization is associated with student misbehavior, when mediated by interpersonal self-efficacy and teacher-student closeness. Moreover, while teaching style determinants showed no connection with professional accomplishment, greater epistemological sophistication and greater student misbehavior had a moderate negative association with professional accomplishment, via teacher-student closeness. Student misbehavior also showed the same negative link with personal accomplishment, when mediated by teacher-student attunement.

The findings for the mediational role played by interpersonal self-efficacy as a mediator between teaching style determinants, namely student misbehavior, and burnout are contradictory with the ones found in other reports (Fernet et al. 2012; Bermejo-Toro et al. 2016). Elsewhere, moderate, but systematic associations between greater teacher self-efficacy, lower levels of emotional exhaustion and depersonalization, and higher sense of accomplishment have been demonstrated (Brouwers and Tomic 2001; Skaalvik and Skaalvik, 2007; 2010) and later confirmed by systematic reviews (Zee and Koeman 2016). Most of these reports were based, however, on measures of general teacher self-efficacy. Teachers assess a wide range of abilities when they examine their sense of competence, from their capacity to develop activities, to class management, and relationships. These teacher self-efficacy dimensions are independent from each other and may affect teacher outcomes in different ways (Cherniss 1993). Although, in general, determinants of self-efficacy are mastery, social persuasion, vicariant learning, and emotional and physiological states, the effects associated with specific forms of self-efficacy are determined by additional factors. Task-related self-efficacy is determined by personal effort, persistence or degree of task complexity (Bandura 1997). In turn, interpersonal efficacy is dependent from personal agency, but also from external cues, such as openness from the other person, feedback, and their emotional states (Locke et al. 2016). Thus, interpersonal self-efficacy is more unpredictable and so more prone to lead to negative states, such depersonalization and lack of accomplishment, which justifies these results.

The mediating role of teacher-student closeness and attunement between some epistemological student misbehavior and burnout dimensions seems less counterintuitive. While greater attunement with students prevents emotional exhaustion caused by student misbehavior, it also has costs in terms of lower professional

accomplishment. In addition, adding greater closeness to perceptions of greater epistemological sophistication and student misbehavior has a small, but significantly negative impact on all burnout dimensions. Four sources of influence may well explain these results. One resulting from the model itself is that the mediating role of teacher-student relationship attitudes is shaped by interpersonal self-efficacy, namely in the case of the connections between epistemological sophistication, student misbehavior and burnout. Specifically, student misbehavior deploys teacher interpersonal self-efficacy as demonstrated elsewhere (Split et al. 2011) leading, in turn, to small improvements in attunement but also to greater distance with students. Thus, lower levels of the participants' perceived interpersonal competence justify, at least in part, that adding closeness to student misbehavior has a small negative impact on burnout dimensions. Moreover, the results reflect the ambivalent nature of personal relationships. Social relationships have been depicted, for a long time now, as one of the most relevant set of resources to prevent stress's negative effects (Hobfoll and Vaux 1993). Closeness and lower levels of conflict in interpersonal relationships help to prevent emotional exhaustion, but they also lead to mixed feelings and outcomes (Camara et al. 2014). Teacher-student relationships' mediating role between teaching stressors and burnout in particular is understudied. Still, small to moderate direct effects of greater teacher-student relationship quality across the different burnout dimensions have been reported (Skaalvik and Skaalvik 2017; Rodríguez-Mantilla Fernández-Díaz 2017; Van Droongenbroeck et al. 2014). Nevertheless, it is understandable that relationship closeness and striving for relationship attunement when students misbehave may have some side effects for these teachers. Student misbehavior tends to be persistent (author 2018) and using teacher-student relationships as a means to change disrupting conduct involves important amounts of time and commitment. At some point, teachers may start

to display a more defensive relational style, reducing closeness and conflict management skills, thus, adopting more cynical attitudes and having a sense of being less accomplished in the face of misbehavior. In addition, the mediating role of teacher-student relationships between greater student misbehavior leading to depersonalization attitudes and lower professional accomplishment can be understood according to developmental theories. In a more general way, these findings may reflect teachers' unrealistic expectations about their ability to have a positive impact on student behavior. While the literature has come to describe that teacher-student relationships do contribute to more positive developmental trajectories (Jerome et al. 2009; Pianta 2001), the degree of this impact is still lower than the one provided by parents. Moreover, correlations in this study show that teachers tend to feel closer to older students, who are the ones that most frequently misbehave. Adolescence involves a greater openness to non-familial adult influence, including teachers, and they play a significant role in tempering antisocial behaviors (author 2018). However, their role is still limited, compared to that played by parents and peers (Cotterell 2007). Teachers' unrealistic beliefs about their students may be more salient when teachers display insecure relational styles and students' own insecurity is acted-out in terms of misbehavior. In this scenario, teachers displaying more insecure relational styles tend to respond by investing in excessive closeness and conflict management, with difficulties in establishing relational boundaries (Jerome et al. 2009). Moreover, they may feel hurt and unaccomplished if this level of investment does not meet their expectations of student reciprocity, which is another standard of teacher-pupil relationships (Rodríguez-Mantilla and Fernández-Díaz 2017). Taken together, unrealistic beliefs about children's development, insecure relational styles, and lack of perceived reciprocity may lead to ineffective teacher-student relationships and explain the negative role of closeness and

attunement in mediating the path from student misbehavior to burnout dimensions, especially to greater depersonalization and lower professional accomplishment.

Finally, the research site may also contribute to this set of surprising results. The participants taught in a rural area. Research about teacher burnout in rural contexts is scant (e.g. Zhang et al. 2014). Nevertheless, in this context, relationships tend to be closer and more informal, but the level of relational tension is high, mostly due to contradictions between teachers and family beliefs held about education, with the later usually downgrading the merits of studying (Singh and Dika 2003). This framework of more intense relationships, tempered by conflicting perspectives about education, may give a minor, but still consistent contribution to explain why teacher-student closeness and attunement in this study led to negative impacts on depersonalization and professional accomplishment dimensions. The fact that teacher closeness was greater among those teaching upper grades may intensify these relational contradictions in rural areas. The transition to adulthood tends to bring up differences between teachers and family beliefs, with teachers investing in students' progression to university, while families, most of the time, are keener to support a transition to the work market (Papadakis and Kyvelou 2017).

4.1. Implications and limitations

This study has some research implications. To begin with, it points to both direct and indirect associations of epistemological beliefs with some depersonalization and professional accomplishment. These connections are absent from other studies, but a general program of studies that may understand the connections between teaching style determinants and burnout may shed some light on how teachers' beliefs about knowledge may also act as direct or indirect sources of teacher burnout. The model under test also needs to be replicated in different contexts (urban and suburban) in order

to verify if it produces consistent findings across research sites. From a practical standpoint, although this study is exploratory, it seems warranted that teacher pre-service and service training incorporates or reemphasizes the topic of interpersonal resources as a means to improve teacher well-being. Both its potential as well as its limits should be explored, to avoid unrealistic beliefs regarding student behavior and development. This paper also adds to several other studies (e.g. Skaalvik and Skaalvik 2010) in pointing out that school climates need to nurture teacher professional autonomy and student behavior management to promote interpersonal self-efficacy and to prevent teachers' emotional exhaustion.

Concerning the limitations of this study, it is important to underline its cross-sectional design. SEM analysis is based on a theoretical assumption of causality; thus longitudinal analyses are required to establish solid causal conclusions. A second limitation is that all measures of potential stressors in this study are based on self-reports. Multi-informant studies including students' and teachers' peers are, thus, required. Finally, recruitment was based on being a member of a teachers' union, which may have resulted in overrepresentation of those who are more willing to be socially involved and more prone to participate in research.

5. Conclusion

The results of this study show that interpersonal relationships play a complex intermediate role between autonomy-oriented teaching and burnout. While teaching style requirements under test show distinct connections with burnout dimensions, the mediating role of interpersonal resources is contradictory, especially the mediating role of teacher-student relationship attributes between student misbehavior and burnout. Closeness and attunement are detrimental in terms of greater depersonalization and sense of professional failure. Thus, in intense and dynamic interpersonal settings like

schools, teacher-student closeness and attunement may have its ups and downs.

Teachers who are more competent and aware of relational resources merits and limits will not only gain in terms of their well-being, they will also be more prepared to benefit from relational features which are required in contemporary education.

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Table 1. Bivariate correlations between the study variables

	<i>M</i>	<i>SD</i>	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
1.	---	---													
2.	20.48	8.41	-.02												
3.	---	---	-.07	.61**											
4.	---	---	-.03	.24*	.31**										
5.	100.21	24.98	-.12**	.01	.02	.15**									
6.	41.60	4.46	.19**	.01	-.05	-.08	.09								
7.	57.72	12.34	.02	-.15*	-.07	-.02	-.26**	-.07							
8.	117.40	15.38	-.01	-.08	.12*	.02	.41**	.12*	-.40**						
9.	29.46	4.93	.23**	-.01	.04	.06	.25**	.21**	-.26**	.39**					
10.	36.47	6.31	.04	.08	.15**	.09	.22**	.14*	-.35**	.44**	.62**				
11.	29.79	9.57	-.15*	.01	.08	-.01	-.23**	.02	.28**	-.27**	.42**	.41**			
12.	35.96	5.63	-.06	.09	.04	.06	.30**	.21*	-.38**	-.56**	-.44**	-.54**	-.37**		
13.	8.85	3.94	.04	-.07	-.13*	-.05	-.24**	-.13*	.30**	-.42**	-.12*	-.40**	.45**	-.42**	

* $p < .05$; ** $p < .01$

1. School level taught; 2. experience of teaching in years; 3. type of contract; 4. experience of school administration; 5. Teacher professional autonomy; 6.

Epistemological sophistication; 7. Students' behavior; 8. Teacher interpersonal self-efficacy; 9. Teacher-students closeness; 10. Teacher-students attunement; 11. Burnout – emotional exhaustion; 12. Burnout – depersonalization; 13. Burnout – personal accomplishment.

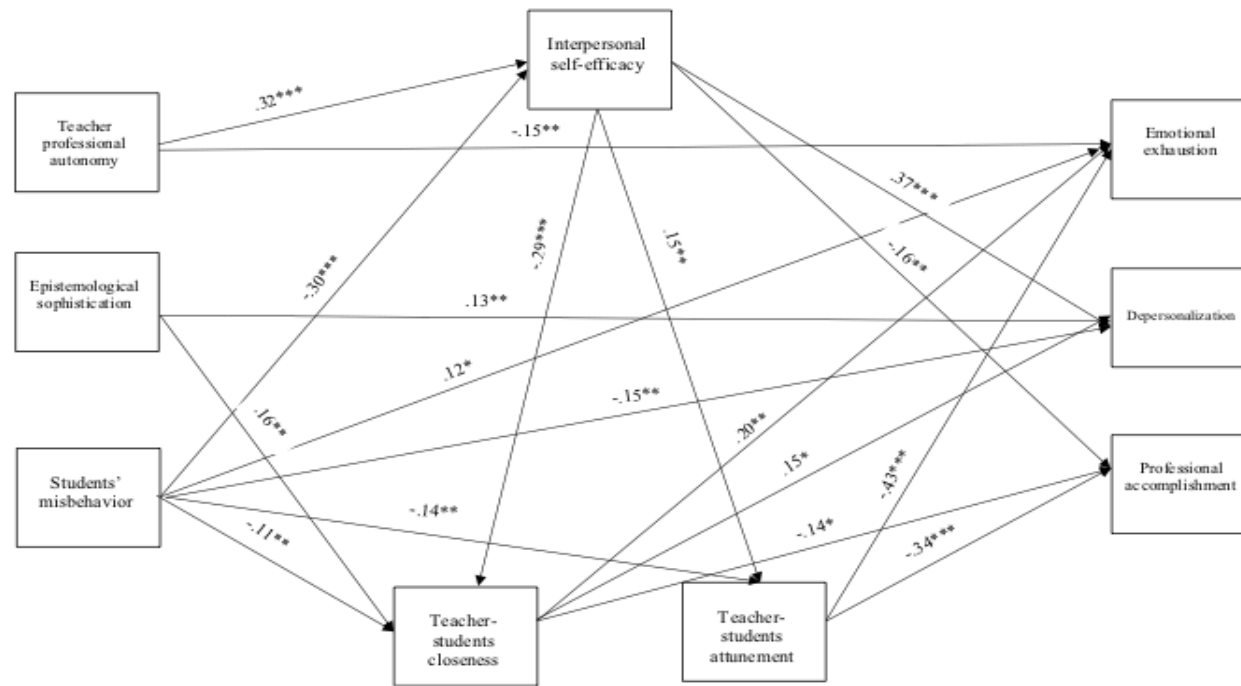


Fig. 1 Structural model of relations between teaching determinants interpersonal resources and burnout dimensions